BCF 101 Read Ahead

1. BCF 101 is a Level I Defense Acquisition University (DAU) course intended to prepare students to estimate the life cycle cost of materiel systems. As an introductory course, we presume no prior knowledge of the policies and specific techniques used in this area.

2. Since cost estimating is a quantitative undertaking, BCF 101 contains a substantial amount of quantitative materiel. We do presume that students are competent in algebra. You should be capable of substituting into and solving relatively involved algebraic expressions and be familiar with the use of natural logarithms. Please bring a calculator with universal power (y^x) and natural logarithm (ln) functions. Calculators capable of involved statistical calculations are not necessary. Although the statistics necessary in the course will be taught, a prior course in the subject is recommended. An example of a calculational problem that will be seen in the class can be found below. Although you are by no means required to be able to complete the problem before class begins, it provides some idea of the type of algebraic expressions you will encounter. If you have questions about the quantitative content of the course, please feel free to call the Course Manger, Ms. Martha Spurlock at DSN 539-4234 or commercial (804) 765-4234.

3. All texts, reference materials, and a three ring binder will be provided. Notebook paper and other general supplies will not be furnished. These are available at the ALMC bookstore.

4. On the final day, the class will be released at 1100. If your plans change and you will not be able to attend, a call would be greatly appreciated. This may enable a student on a waiting list to attend.

SOLUTION TO INTRINSICALLY LINEAR REGRESSION

PRACTICAL EXERCISE 1

1. The power predictor model. $\hat{Y} = \hat{A}\,X^{\hat{B}}$ $\qquad \ln\hat{Y} = \ln\hat{A} + \hat{B}\ln X$

X	Y	1n X	1n Y	1n X 1n Y	$(1n\ X)^2$
2	54	0.6931	3.9890	2.7648	0.4804
14	35	2.6391	3.5553	9.3828	6.9648
38	13	3.6376	2.5649	9.3301	13.2321
65	6	4.1744	1.7918	7.4797	17.4256

$\Sigma 1nX = 11.1442$ $\quad \Sigma 1nY = 11.9010$ $\quad \Sigma(1nX1nY) =$ $\quad \Sigma(1nX)^2 =$

289574 $\qquad$ 381029

$$\hat{B} = \frac{n\Sigma(1nX1nY) - (\Sigma 1nX)(\Sigma 1nY)}{n\Sigma(1nX)^2 - (\Sigma 1nX)^2} \qquad \hat{B} = \frac{4(28.9574) - (11.1442)(11.9010)}{4(38.1029) - (11.1442)^2}$$

$$1n\hat{A} = \frac{\Sigma 1ny - B\Sigma\hat{1}nX}{n} \qquad 1n\hat{A} = \frac{11.9010 - (-0.5952)(11.1442)}{4} = 4.6335$$

$$\hat{A} = 102.8735$$

$$\hat{Y} = 102.8735\ X^{-0.5952}$$